

I claim:

1. A method for determining a characteristic of a biological object, comprising:  
detecting a pattern on the biological object;  
emitting radiation onto the detected pattern;  
5 collecting at least a portion of radiation that is reflected by the pattern on the object; and  
analyzing the collected radiation to determine a characteristic of the biological object.

2. The method of claim 1, wherein the characteristic includes blood glucose levels.

10 3. The method of claim 1, wherein the biological object includes an eye.

4. The method of claim 1, wherein the pattern includes a blood vessel.

5. The method of claim 1, wherein the detecting comprises imaging the biological object  
15 with radiation having a wavelength different from the wavelength of the emitted radiation and  
processing the image based on color.

6. The method of claim 1, wherein the emitted radiation includes near infrared radiation.

20 7. The method of claim 1, wherein the emitting the radiation includes tracking the pattern  
with the radiation if the pattern is moving.

8. An apparatus for determining a characteristic of a biological object, comprising:

an imaging detector positioned to receive a first type of reflected radiation from the biological object;

a radiation directing device capable of directing a second type of radiation onto a pattern on the object;

5 a radiation detection assembly positioned to receive reflected radiation of the second type from the biological object; and

electronics, coupled to the imaging detector, radiation directing device and radiation detection assembly, capable of

10 identifying a pattern on the object using reflected radiation data from the imaging detector,

adjusting the radiation directing device to direct the second type of radiation onto the identified pattern, and

determining a characteristic of the object using reflected radiation data from the radiation detection assembly.

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9. The apparatus of claim 8, wherein the characteristic includes blood glucose levels.

10. The apparatus of claim 8, wherein the biological object includes an eye.

20 11. The apparatus of claim 8, wherein the pattern includes a blood vessel.

12. The apparatus of claim 8, wherein the electronics identifies a pattern by processing the image based on color.

13. The apparatus of claim 8, wherein the radiation directing device includes a digital micro-mirror.

5 14. The apparatus of claim 8, wherein the second type of radiation includes near infrared radiation.

15. The apparatus of claim 8, wherein the first type of radiation includes blue or green light.

10 16. The apparatus of claim 8, wherein the electronics is further capable of tracking the identified pattern if the pattern is moving.

17. The apparatus of claim 8, wherein the radiation detection assembly includes a pixilated detector.

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18. A system for determining a characteristic of a biological object, comprising:  
a radiation directing engine capable of adjusting a radiation direction device such that emitted radiation is directed onto a pattern on the object;  
a feedback engine, communicatively coupled to the radiation directing engine, capable of 20 determining the position of the pattern; and  
an analysis engine, capable of determining a characteristic of the object using radiation reflected from the pattern.

19. The system of claim 18, wherein the characteristic includes blood glucose levels.
20. The system of claim 18, wherein the biological object includes an eye.
- 5 21. The system of claim 18, wherein the pattern includes a blood vessel.
22. The system of claim 18, further comprising a pattern selection engine, communicatively coupled to the feedback engine, capable of identifying the pattern on the object.
- 10 23. The system of claim 18, wherein the feedback engine is further capable tracking the pattern if the pattern is moving.
24. A system, comprising:
  - means for detecting a pattern on the biological object;
  - 15 means for emitting radiation onto the detected pattern;
  - means for collecting at least a portion of radiation that is reflected by the pattern on the object; and
  - means for analyzing the collected radiation to determine a characteristic of the biological object.
- 20 25. A method, comprising:
  - detecting a pattern on a biological object; and
  - emitting radiation onto the detected pattern.

26. The method of claim 25, wherein the radiation has a wavelength used for coagulation.

27. The method of claim 25, wherein the radiation has a wavelength used for ablation.

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28. The method of claim 25, wherein the radiation has a wavelength used for analysis.

29. An apparatus, comprising:

an imaging detector positioned to receive a first type of reflected radiation from a

10 biological object;

a radiation directing device adjustable to direct a second type of radiation onto a pattern

on the object; and

electronics, coupled to the imaging detector and radiation directing device, capable of

identifying a pattern on the object using reflected radiation data from the imaging

15 detector, and

adjusting the radiation directing device to direct the second type of radiation onto

the identified pattern.

30. The apparatus of claim 29, wherein the second type of radiation has a wavelength used

20 for coagulation.

31. The apparatus of claim 29, wherein the second type of radiation has a wavelength used

for ablation.

32. The apparatus of claim 29, wherein the second type of radiation has a wavelength used for analysis.

5 33. A system, comprising:  
a pattern selection engine capable of identifying a pattern on a biological object;  
a feedback engine, communicatively coupled to the pattern selection engine, capable of determining the position of the pattern; and  
a radiation directing engine, communicatively coupled to the feedback engine, capable of  
10 adjusting a radiation directing device such that emitted radiation emitted is directed onto a pattern on a biological object.

34. The system of claim 33, wherein the radiation has a wavelength used for coagulation.

15 35. The system of claim 33, wherein the radiation has a wavelength used for ablation.

36. The system of claim 33, wherein the radiation has a wavelength used for analysis.

20 37. A system, comprising:  
means for detecting a pattern on a biological object; and  
means for emitting radiation onto the detected pattern.

38. A method for determining a characteristic of a biological object, comprising:

detecting a pattern on the biological object;  
emitting radiation onto an area surrounding or near to the detected pattern;  
collecting at least a portion of radiation that is radiated by the pattern on the object; and  
analyzing the collected radiation to determine a characteristic of the biological object.

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39. The method of claim 38, wherein the characteristic includes blood glucose levels.

40. The method of claim 38, wherein the biological object includes an eye.

10 41. The method of claim 38, wherein the pattern includes a blood vessel.

42. The method of claim 38, wherein the emitting the radiation includes tracking the area surrounding or near to the pattern with the radiation if the pattern is moving.

15 43. An apparatus for determining a characteristic of a biological object, comprising:  
an imaging detector positioned to receive a first type of reflected radiation from the biological object;

a radiation directing device capable of directing a second type of radiation onto an area surrounding or near to the pattern on the object;

20 a radiation detection assembly positioned to receive radiated radiation of the second type from the biological object; and  
electronics, coupled to the imaging detector, radiation directing device and radiation detection assembly, capable of

identifying the pattern on the object using reflected radiation data from the imaging detector,  
adjusting the radiation directing device to direct the second type of radiation onto an area surrounding or near to the identified pattern, and  
5 determining a characteristic of the object using radiated radiation data from the radiation detection assembly.

44. The apparatus of claim 43, wherein the characteristic includes blood glucose levels.  
10 45. The apparatus of claim 43, wherein the biological object includes an eye.  
46. The apparatus of claim 43, wherein the pattern includes a blood vessel.